

fLEat

Fleet Environmental Action and Assessment



The Project

- Intelligent Energy For Europe – STEER
 - EIE/07/007/SI2.466261
- 1/10/07 – 31/3/10
- Consortium 11 partners
 - VITO (BE) – Flemish Institute for Technological Research
 - AEA (AT) – Austrian Energy Agency
 - TRT (IT) – Trasporti e Territorio
 - IPA (RO)
 - Geonardo (HU)
 - BAUM (D)
 - SenterNovem (NL)
 - CRES (GR) – Centre of Renewable Energy Sources Hellas
 - Mobiel21 (BE)
 - BEMAG (AT)
 - RFOL (SWE) – Örebro County Regional Development County



Background

Fleet transport activity has an increasing share in the total transport activity

- Owner of vehicles <> driver of vehicles, costs are not carried by driver
- Car policy is part of HRM, not transport driven
- + Fleet management is more rational (cost driven) compared to private purchase behaviour
- + Measures dedicated at captive fleets are effective
- + Companies are interested in environment
- 'Mobility' is not top priority in environmental management
- Actions are quite superficial

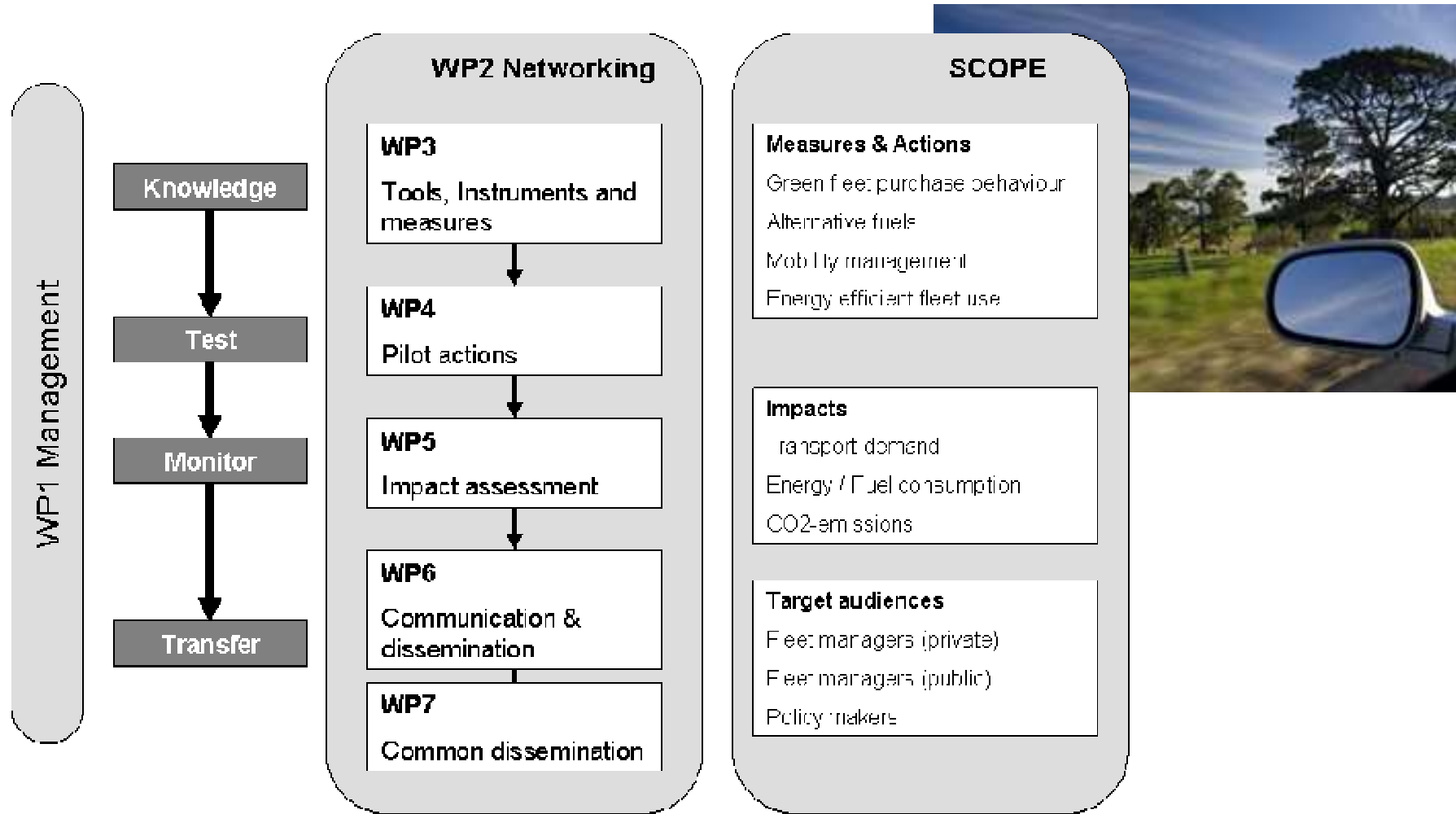


Objective

The overall objective of FLEAT is to reduce energy consumption and CO₂-emissions of captive fleets by implementing integrated measures on energy efficient vehicles, energy efficient use of vehicles and energy efficient use of fleets.



Overview



Tools & policy mix

- Toolbox for fleet operators based on existing material
 - available at www.fleet-eu.org
 - 3 types of actions
 - Energy efficient vehicles: green car policy, AFV...
 - Driving behaviour: training, long term monitoring & feedback systems...
 - Mobility management: improved logistics, commuting...
- Policy mix for policy makers
 - Overview of effective programmes and measures abroad



Pilot actions

- Implement actions in the field of energy efficient fleet management
- Fixed: 29 pilot actions (all types of actions)
- Conclusions of pilot actions are expected in January 2010
- 3 types of actions
 - Energy efficient vehicles: green car policy, AFV...
 - Driving behaviour: training, long term monitoring & feedback systems...
 - Mobility management: improved logistics, commuting...
- Different types of captive fleets
 - Private fleets – passenger cars
 - Utility fleets – vans & HDV
 - Public fleets
 - Public transport fleets



Pilot actions: main elements

- Provide insight in cost-effectiveness of different measures in different circumstances
 - By means of harmonised monitoring & assessment approach
 - What works best ? Clean vehicles, driving behaviour and/or mobility management ?
- Draw recommendations for policy makers
 - Supporting programmes
 - Learnings from pilot actions & networking



FLEAT Outcomes

- Direct Outcomes
 - Toolbox and policy mix
 - Direct impact on transport activities and CO₂-reduction
 - Assessment framework
 - Networking events and dissemination
- Indirect Outcomes
 - Indirect impact on transport activities and CO₂-reduction
 - Networking and dissemination



Pilot actions (fixed): overview

| Type of fleet | Type of action | | | <i>Total</i> |
|------------------------|--------------------|-------------------|---------------------|--------------|
| | Vehicle technology | Driving behaviour | Mobility management | |
| Private - passenger | 3 | 5 | 1 | <i>9</i> |
| Private - utility veh. | 2 | 6 | 1 | <i>9</i> |
| Public | 1 | 1 | -- | <i>2</i> |
| Public transport | 1 | 7 | 1 | <i>9</i> |
| <i>Total</i> | <i>7</i> | <i>19</i> | <i>3</i> | <i>29</i> |

Pilot Actions in Greece (CRES)

- **ILPAP** (public bus company, 366 busses): drivers trained in eco-driving. Average results after 3 months: -11,5% energy use and +8% average speed, possible savings of €620.000 annually
- **DHL Hellas** (postal service, 160 utility vehicles): eco-driving
- **Leaseplan Hellas** (5000 passenger cars): eco-driving for lease drivers
- **Public Power Corporation** (4000 vehicles): eco-driving
- **Bristol Meyers Squibb** (100 vehicles): drivers trained in eco-driving



Pilot Actions in Romania (IPA)

- **Helco** (transport and service company, 22 vans and passenger cars): 18 drivers trained in eco-driving
- **ISIS** (transport company, 22 vehicles): optimise routing of vehicles
- **Craiova municipality** (public transport fleet, 203 busses): drivers trained in eco-driving
- **ELPRECO** (concrete blocks and bricks, 41 utility vehicles): eco-driving



Pilot Actions in Belgium (VITO)

- KBC Bank (1000 cars): eco-driving for 100 drivers + green car policy
- Athlon Car Lease (70 cars): EcoCoach black box monitoring for eco-driving in 10 vehicles + training if monitoring is not enough
- TNT Express (330 utility vehicles): car policy, awareness campaign on ecodriving and driving behaviour monitoring
- Negotiations with the cities of Antwerp (on board monitoring and CNG vehicles) and Hasselt (black box monitoring and car policy) and BESIX (construction, car policy)



Pilot Actions in Belgium (Mobiel21)

- **KBC Bank:** monitor current mobility management scheme & make recommendations to become CO₂-neutral by 2010
- **Negotiation with the city of Antwerp:** reduce car fleet from 160 to 30 vehicles (relocation with less parking space) + mobility management
- **City of Ghent:** less car use by avoiding trips, pooling...



Pilot Actions in Austria (AEA)

- Rail Cargo Austria (international logistics): eco-driving for all drivers of 130 utility vehicles
- ÖBB (Austrian Railways Holding, 4000 cars): eco-driving for 150 drivers
- ÖBB: vehicle technology (1 hybrid car, 1 electric car, 2 CNG-cars), demonstration and purchase
- Postbus (public transport company): lightweight busses, efficient heating & cooling, bus stops on demand and improved vehicle capacity
- Other pilots under negotiation: Vaillant (30 CNG vehicles), VLOTTE (100 electric cars), Feistritzwerke (solar car)



Pilot Actions in Austria (BEMAG)

- Verkehrsverbund Vorarlberg (public transport, 200 busses): on-board monitoring device and eco-driving trainings for bus drivers
- Reisedienst Husman (private bus company, 20 busses): on-board monitoring device and following driver trainings



Pilot Actions in Germany (B.A.U.M.)

- **Holcim** (building materials, 270 utility vehicles): eco-driving on 130 vehicles with awards for the most energy efficient drivers
- **Hamburg Wasser** (water company): procurement and assessment of 80 CNG utility vehicles and feasibility study to use own bio-methane production from water sludge
- **Weleda** (health and wellness products, 105 cars): green car policy to reduce CO₂ and incentive-system for employees to accept smaller vehicles



Pilot Actions in Germany (B.A.U.M.) - continued -

- Stuttgarter Strassenbahnen (public bus company): retrofitting 38 busses with an intelligent gear shifting system
- DATEV (software, 560 cars): comparison of different car policies + money instead of cars for mobility



Pilot Actions in the Netherlands (SenterNovem)

- Kone (elevators): eco-driving training for 120 utility vehicle drivers + European spread out (Italy, Austria, Belgium)
- Arriva (public transport): training 565 bus drivers in eco-driving
- Delta Lloyd: mobility management (alternatives to lease cars) in cooperation with Leaseplan NL – Mobility Mixx
- Negotiations with BP about ecodriving and possible other actions



Pilot Actions in Italy (TRT)

- EBUS (public transport company): eco-driving for min. 5 drivers, possibly more actions (technical improvements, mobility management)
- Negotiations with Union Key / Nestle



Monitoring and Assessment

- Web-based application to monitor impact of actions
 - Introduction of cleaner vehicles
 - Driving behaviour
 - Mobility management
- Main indicators
 - Number of vehicles involved in pilot actions
 - Reduction of km driven
 - Direct fuel savings
 - Direct CO₂-savings
 - Indirect CO₂-savings
 - Cost of the action
- Real-world figures on the effectiveness of fleet management (€/ton CO₂ reduced)



Monitoring and Assessment

- Screenshot of monitoring tool:

| AE4 $\hat{f}_k = Z4/100*AB4*2,64$ | | | | | | | | | | | | | | |
|-----------------------------------|----------------------|--|---------------------------------------|----------|---------------------|---------------------------|------------------------------------|--|----------------------------------|---|---|--|------------------------------------|------------------------|
| | Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM |
| 1 | stance driven | | | | | | | | | | | | | |
| 2 | Distance driven (km) | either total or average fuel consumption | | Ecoscore | Evaluation ecoscore | Total direct CO2-emission | Average direct CO2-emission (g/km) | Evaluation average direct CO2-emission | Total well-to-wheel CO2-emission | Average well-to-wheel CO2-emission (g/km) | Evaluation average well-to-wheel CO2-emission | Actual vs. official fuel consumption (%) | Evaluation actual fuel consumption | External costs (t€/km) |
| 3 | | Total fuel consumption | Average fuel consumption (per 100 km) | | | | | | | | | | | |
| 4 | 17500 | 1093,75 | 6,25 | 51 | -- | 2888 | 165 | + | 3457 | 198 | + | 118 | - | 1,04038 |
| 5 | 33000 | 2904 | 8,80 | 52 | -- | 7667 | 232 | ++ | 9180 | 278 | ++ | 117 | - | 0,97912 |
| 6 | 28000 | 2273,6 | 8,12 | 50 | -- | 6002 | 214 | -- | 7187 | 257 | -- | 113 | 0 | 1,0631 |
| 7 | 40000 | 2692 | 6,73 | 58 | -- | 7107 | 178 | 0 | 8509 | 213 | 0 | 107 | + | 0,8409 |
| 8 | 35000 | 2674 | 7,64 | 56 | -- | 7059 | 202 | 0 | 8453 | 242 | 0 | 119 | + | 0,9052 |
| 9 | 36000 | 2847,6 | 7,91 | 56 | -- | 7516 | 209 | -- | 9001 | 250 | -- | 122 | -- | 0,9167 |
| 10 | 20000 | 1494 | 7,47 | 61 | + | 3944 | 197 | 0 | 4723 | 236 | 0 | 122 | -- | 0,69124 |
| 11 | 37500 | 2775 | 7,4 | 61 | + | 7326 | 195 | 0 | 8772 | 234 | 0 | 121 | -- | 0,68124 |
| 12 | 26250 | 1979,25 | 7,54 | 64 | + | 5225 | 199 | 0 | 6256 | 238 | 0 | 126 | -- | 0,65346 |
| 13 | 17500 | 1393 | 7,96 | 62 | 0 | 3678 | 210 | 0 | 4403 | 252 | 0 | 119 | -- | 0,72036 |
| 14 | 39273 | 2230,7064 | 5,68 | 70 | ++ | 9889 | 150 | ++ | 7051 | 180 | ++ | 114 | 0 | 0,53226 |
| 15 | 28000 | 2217,6 | 7,92 | 58 | -- | 5854 | 209 | -- | 7010 | 250 | -- | 120 | -- | 0,8425 |
| 16 | 34000 | 2002,6 | 5,89 | 70 | ++ | 5287 | 155 | + | 6330 | 186 | + | 118 | -- | 0,53226 |
| 17 | 28000 | 1909,6 | 6,82 | 59 | -- | 5041 | 180 | 0 | 6036 | 216 | 0 | 116 | -- | 0,80758 |
| 18 | 34000 | 2077,4 | 6,11 | 64 | + | 5484 | 161 | + | 6567 | 193 | + | 107 | + | 0,66674 |
| 19 | 46957 | 2883,1598 | 6,14 | 60 | 0 | 7612 | 162 | + | 9114 | 194 | + | 120 | -- | 0,77546 |
| 20 | 38571 | 2244,8322 | 5,82 | 65 | ++ | 5926 | 154 | + | 7096 | 184 | + | 124 | -- | 0,53144 |
| 21 | 30000 | 1860 | 6,2 | 70 | ++ | 4910 | 164 | + | 5879 | 196 | + | 124 | -- | 0,53226 |
| 22 | 41538 | 3107,0424 | 7,48 | 54 | -- | 8203 | 197 | 0 | 9821 | 236 | 0 | 108 | + | 0,93194 |
| 23 | 22000 | 1564,2 | 7,11 | 58 | -- | 4129 | 189 | 0 | 4944 | 225 | 0 | 108 | + | 0,8425 |
| 24 | 30000 | 2436 | 8,12 | 60 | 0 | 6431 | 214 | -- | 7700 | 257 | -- | 114 | 0 | 0,78926 |
| 25 | 63529 | 4796,4395 | 7,55 | 52 | -- | 12663 | 199 | -- | 15862 | 239 | -- | 105 | -- | 1,01948 |
| 26 | 58278 | 3724,5164 | 6,39 | 60 | 0 | 9833 | 168 | + | 11773 | 202 | + | 114 | 0 | 0,7768 |
| 27 | 39273 | 2910,1293 | 7,41 | 58 | -- | 7693 | 196 | 0 | 9189 | 234 | 0 | 121 | -- | 0,8399 |
| 28 | 37241 | 2227,018 | 5,98 | 65 | ++ | 5879 | 158 | + | 7040 | 189 | + | 127 | -- | 0,53994 |
| 29 | 31000 | 2402,5 | 7,75 | 59 | -- | 6343 | 205 | 0 | 7594 | 245 | 0 | 131 | -- | 0,7997 |
| 30 | 30000 | 3102 | 10,34 | 60 | 0 | 8189 | 273 | -- | 9805 | 327 | -- | 144 | -- | 0,80416 |
| 31 | 35000 | 2058 | 5,88 | 69 | ++ | 5433 | 155 | + | 6505 | 186 | + | 131 | -- | 0,51744 |
| 32 | 32000 | 2438,4 | 7,62 | 64 | + | 6437 | 201 | 0 | 7708 | 241 | 0 | 129 | -- | 0,65528 |
| 33 | 42353 | 2778,3568 | 6,56 | 61 | 0 | 7335 | 173 | 0 | 8782 | 207 | 0 | 117 | -- | 0,76346 |
| 34 | 22000 | 1687,4 | 7,67 | 65 | ++ | 4455 | 202 | 0 | 5334 | 242 | 0 | 160 | -- | 0,54444 |
| 35 | 22000 | 2211 | 10,05 | 54 | -- | 5837 | 265 | -- | 6989 | 318 | -- | 155 | -- | 0,95006 |
| 36 | 11000 | 577,5 | 5,25 | 73 | ++ | 1525 | 139 | ++ | 1825 | 166 | ++ | 135 | -- | 0,44902 |
| 37 | 36000 | 2142 | 5,95 | 63 | + | 5655 | 157 | + | 6771 | 188 | + | 101 | ++ | 0,6847 |
| 38 | 36000 | 2980,8 | 8,28 | 54 | -- | 7869 | 219 | -- | 9422 | 262 | -- | 120 | -- | 0,93194 |



Dissemination

- Website: www.fleat-eu.org
- 15 high quality FLEAT posters
- FLEAT brochures (hard copy)
- FLEAT newsletter (2/year)
- FLEAT PowerPoint presentation
- Publications in relevant journals
- Presentation on national events
- Organization of 8 national events and 1 international event
 - See website for agenda of events



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